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ABSTRACT

It is well known that the number of community college students who complete an Associate's degree or even a certificate program is low. Among those who begin an Associate's degree program, fewer that 50% have earned their degree or are still enrolled after 5 years. For nontraditional students, the rates are even lower. For minorities, low income students, and those with limited English proficiency, the rates are lower still. Focus groups conducted by Opening Doors to Earning Credentials, a Manpower Demonstration Research Corporation (MDRC) program, found that conflicting demands on students' time pose a significant barrier to student success for working adults. The focus groups also found the need for remedial studies to be another crucial barrier for these same students, with as many as 75% of urban college students in need of at least one remedial course. Innovative colleges are experimenting with ways to shorten the time it takes to earn a credential and to create more easily navigable pathways into credential programs. This document examines some of the innovative approaches community colleges are taking in this effort, and reports on programs at five two-year colleges. The report also makes suggestions for curricular and program redesign. (Contains 12 references.) (NB)

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Opening Doors to Earning Credentials

Curricular and Program Format Innovations that Help Low-Income Students Succeed in Community College

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Jobs for the Future

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Contents

Overview 1

Rationale: Why Look at Program Redesign? 2

Framework for Understanding Program Redesign Strategies 3

Developmental Education Approaches That Can Help Improve College Credential Outcome 5

Innovative Approaches to Redesigning Developmental Education Programs 6

Lessons From Innovative College Programs 9

Curricular and Program Redesign of College Credential Programs 14

Innovative College Program Models 17

Programs for Young High School Dropouts or Graduates who are Still Not College-Ready 23

Implications for Opening Doors Research 26

References 32

About MDRC 33

Overview

In recent years, interest has grown in the role of community colleges in helping low-skill and low-income individuals advance out of poverty and toward self-sufficiency.[1] In part, this interest is a reaction to the shortcomings of traditional workforce and adult education programs.[2] It also reflects the impressive efforts of innovative community colleges to focus resources and leadership attention on strategies to improve postsecondary attainment, persistence, and program completion for lower-income working adults.

MDRC's Opening Doors to Earning Credentials project and its early reports echoed the conclusions of Norton Grubb, a professor at the University of California at Berkeley, and others regarding the potential of community colleges — that community colleges are the local educational institutions with the greatest potential for helping low-wage workers earn skills and credentials that lead to both educational and career advancement.[3] At the same time, Opening Doors identified serious obstacles to realizing that potential, including the characteristics of the low-wage workforce, the institutional structure and priorities of most community colleges, and the external policy environment in which they operate.

MDRC has identified three strategies that might enable colleges to be more effective in helping working adults obtain college credentials. These are: (1) financial incentives that can address the high cost of college for low-income individuals; (2) student supports that can help working adults cope with academic, personal, and other problems that often result in their dropping or stopping out; and (3) program and curricular innovations and redesign that can cope with the severe time constraints, skill needs, and job advancement hopes of working adults.

MDRC asked Jobs for the Future to look at curricular and program redesign strategies being used in community colleges today to speed advancement from lower levels of skill into credential programs and to shorten the time commitment that earning a credential demands of students. This paper presents a framework for understanding the range of experimentation with program and class reformatting and redesign. It identifies programs that exemplify promising approaches. The paper concludes with issues and questions that MDRC will need to address in

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[1]Low-wage workers are defined here as those who earn less than 200 percent of the federal poverty level. This includes current and former welfare recipients, long-term unemployed, adults with low literacy skills or limited English language proficiency, incumbent workers in dead-end, low-wage jobs, and young adults who lack high school diplomas.

[2]Basic skills programs include remedial or developmental programs in community colleges, adult basic education (ABE) programs, English as a Second Language (ESL) programs, General Educational Development (GED) programs, and alternative programs for out-of-school youth.

[3]Grubb, 2001; Kazis, 2002; Jenkins, 2002.

assessing whether to proceed with a research program focused on program redesign efforts geared to working adults' needs.

Rationale: Why Look at Program Redesign?

It is well known that the percentage of community college students who complete an Associate's degree or even a certificate program is low. Among students who begin an Associate's degree program, fewer than half have earned their degree or are still enrolled after five years. For nontraditional students, many of whom need remedial courses, English language proficiency, or a General Educational Development (GED) certificate before they can even enter an Associate's program, the proportion who earn a postsecondary credential is smaller. For minorities, those with limited English proficiency, and those with low incomes, the odds of earning a credential are that much lower.

Focus groups conducted by Opening Doors researchers found that conflicting demands on their time poses a significant barrier to student success for working adults. Many are trying to balance full-time work with part-time schooling and family responsibilities as well. "Two-year" degrees or even "one-year" certificates are misnomers; most working adults take far longer to complete their programs, if they complete them at all. Nearly two-thirds of community college students attend college part-time. It is difficult for many working adults to stay in school for more than one semester at a time, as work schedules, family demands, and the need to earn more money often lead to stopping out of college.

The focus groups corroborated another important barrier to low-wage workers earning a college credential: remediation. Fully 40 percent of community college students nationally need to take at least one remedial course when they begin their programs. In urban colleges, that can rise to 75 percent. At least a quarter of students fail their remedial courses, and the more remedial courses a student needs to take, the less likely he or she is to earn a degree.[4]

These two barriers for working adults — time constraints faced by people trying to balance family, work, and school combined with significant basic skill deficiencies that must be addressed before entry into, or progress in, a credential program — are significant obstacles to success. To address these obstacles, innovative colleges are experimenting with ways to shorten the time it takes to earn a credential and to create more easily navigable pathways into credential programs. These colleges have been exploring a range of ways to redesign traditional programs to meet the time constraints, employment imperatives, and learning needs of working adults trying to advance out of low-wage work.

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[4] Adelman, 1999.

Framework for Understanding Program Redesign Strategies

Although specific program redesign strategies vary from program to program and school to school, general approaches include:

- **Shortening program duration to accommodate working adults' schedules,** such as turning one- or two-year programs into shorter certificate programs shaped by local employer needs and demand;
- **Breaking a single credential program into a sequence of modules** that can stand alone and yield interim credentials recognized by local firms, making it easier to combine work and learning;
- **Making scheduling more flexible,** for example, by creating evening and weekend schedules, using on-line and self-paced coursework, and locating classes at the worksite;
- **Integrating of developmental education or English language instruction into occupational or academic programs** to contextualize basic skills learning and speed up progress toward credit and credentials; and
- **Strengthening coordination and integration of noncredit programming with credit offerings,** so that working adults who come to take one or a few courses through the noncredit division can more easily and efficiently move into credit programs and toward credentials.

These approaches try to maximize the strengths of both the long-duration degree programs and the short-duration basic skills or workforce development programs. These new approaches emphasize shorter and more efficient periods of time in school, but the best are also designed to be part of transparent, structured career pathways that can help low-wage working adults, whatever their educational and skill backgrounds, move through programs that meet their needs and that connect to opportunities for further education in a college's mainstream credential programs.

These career pathways approaches have been described by several researchers.[5] Though the analyses differ in minor ways, most describe pathways initiatives as sharing a common strategy of multiple entry points that prepare students for, and build bridges to, higher levels of educational and career advancement. They emphasize a series of "'stepping stones' by which students can advance over time to successively higher levels of education and employment."[6]

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[5]Fitzgerald, 2000; Alssid et al., 2002; Jenkins, 2002; Liebowitz, Haynes, and Milley, 2001.
[6]Jenkins, 2002.

These initiatives "mix and match" from the kinds of program elements described above to be flexible, adult worker-friendly, and efficient in moving people through developmental requirements to college credentials. They all include some form of intensive student supports in addition to curricular and program redesign.

In the pages that follow, the presentation distinguishes between different two kinds of pathways programs. These are:

- **Programs for working adults who are not yet ready for success in college coursework:** Strategies to improve developmental education programs are designed to help low-wage workers quickly develop the academic and soft skills necessary for credentialed education and training.[7] The goals are: to improve learning outcomes so that more students are prepared more quickly to continue their education in credentialed programs; to raise completion rates in developmental programs; and to increase the number of students who make the transition to, and succeed in, credit-level education and training.

- **Programs for working adults who qualify for college degree programs:** For students who are capable of succeeding in college courses but face obstacles beyond their basic skills, some colleges are experimenting with curricular and credentialing strategies designed to speed progression through required coursework, make it easier to combine and move between work and college learning, and make it easier for working adults to fit college credential coursework into their busy schedules. The goals of these efforts include: to increase completion rates in credential programs; to improve learning outcomes so that students are prepared for further levels of educational and career advancement; to increase the likelihood that module completion results in career advancement; to increase the number of students who continue their education into more advanced modules; and to improve persistence toward attaining advanced certificates and Associate degrees.

For many working adults, the route to college credentials requires significant basic skill or English-language improvement; strategies to speed up this "pre-work" and to smooth the transition between developmental and mainstream credential programs are critical. For others, flexibil-

[7]Soft skills include a range of competencies essential to success in the knowledge-based workplace and postsecondary education, such as problem-solving, critical thinking, communication, technology, and teamwork.

ity, less-demanding time commitments, and better connections between credential programs and local employers and among certificate, degree, and transfer options are most important.

The analysis that follows is organized according to these broad categories. The two kinds of programs share some strategies and approaches, but they are quite different and pose distinct design challenges. They target different populations of low-wage workers. They have different expectations and requirements about the skill levels that students must demonstrate prior to entry into the program. Curricular and instruction strategies are different, since developmental or bridge programs are primarily about contextualizing basic skills, soft skills, or ESL instruction more than they are about technical skill training.

Moreover, programs that are primarily developmental in nature must be designed not only for rapid movement through basic skill work but also for speedy transition into and through credential programs in the college mainstream. MDRC's interest is in strategies that increase the success of low-skill and low-wage working adults in earning college credentials. *The challenge facing innovative developmental education approaches is not just to raise their own persistence and completion rates but also to be viable "stepping stones" to mainstream college certificates or degrees.* How they are integrated with, linked to, or aligned with credential programs is as critical as their stand-alone success.

The discussion that follows also draws attention to a third kind of program, targeted to high school dropouts who are not ready for college success. These programs serve young adults without a high school diploma or its equivalent through a structured educational program that results in enrollment in a mainstream college credential program. In that way, they create the same kind of preparation for mainstream college programs as the developmental programs profiled in this paper. However, because these initiatives target younger adults (18-21 year olds), there is greater attention to creating a seamless transition to college rather than a set of "stepping stones." In addition, since these programs target younger individuals, the time and family constraints facing working adults are somewhat less pressing, and program design tends to de-emphasize course and program restructuring that responds to the needs of full-time workers. A number of these efforts provide promising models for accelerating and simplifying the progression from low achievement to college success.

Developmental Education Approaches That Can Help Improve College Credential Outcomes

Working adults who enroll in community college do so because they are looking for occupational or academic programs that can help them pursue career opportunities. They are typically looking for rapid advancement benefits.

Yet for a significant number of low-wage workers who enter community colleges without the skills necessary for credit-level education and training, what they get is entry into non-credit developmental and other basic skills programs. As noted above, approximately 40 percent of all community college students are required to take at least one remedial course, most often in math.[8] While there are no precise numbers, an even higher percentage of low-wage workers enter community colleges through developmental education programs, many through adult basic education (ABE), English as a Second Language (ESL), or General Educational Development (GED) programs.[9]

Traditional developmental education is frequently not just the door into postsecondary education but also the wall that keeps students from earning college credentials. Fewer than half of developmental education students complete their programs.[10] Too often, developmental education takes the form of narrowly defined courses that are meant to prepare students to succeed in first-level college math or English classes. These courses — study skills, communication and other soft skills, and time management — are not about learning how to succeed in college. Instructional method is typically quite traditional, relying on lecture, recitation, and drills in classes that are fairly large. Divorced from the interests and needs of work-focused adults, these classes tend to be frustrating for those who have little time to invest in college and are primarily interested in learning that leads them to new or better employment.[11] Developmental education as organized in most community colleges is as much a barrier to earning credentials as it is a prerequisite. Despite this reality, few community colleges are implementing dramatic developmental education reforms; only six out of twenty-five colleges in one study reported significant revision of their developmental programs in the prior ten years.[12]

Innovative Approaches to Redesigning Developmental Education Programs

A growing number of colleges have begun to experiment with ways to change this situation. In its scan of the literature and the field, JFF looked for developmental education programs that were responsive to the needs of working adults and that could demonstrate three interrelated results: (1) improved learning outcomes so that students quickly develop basic skills necessary for credentialed programs; (2) improved program persistence and completion rates; and (3) increases in the number of students who enter and succeed in credit-level programs. A number of programs were found that met these criteria (or they reported they are heading in the

[8]McCabe, 2000.
[9]Jenkins, 2002.
[10]McCabe, 2000.
[11]Jenkins, 2002; McCabe, 2000.
[12]McCabe, 2000.

right direction). These efforts typically share three curricular and program design characteristics that represent a major shift from traditional developmental education:

- Contextualized learning that teaches basic skills in the context of meaningful academic and occupational content, often organized around career pathways;
- Partnerships with employers that create links to job advancement; and
- Bridges to credit-level programs that increase access to credentialed education and training.

These efforts typically incorporate innovative student support services strategies, as well.

Contextualized learning strategies: Innovative efforts to teach basic or English language skills in context are designed to improve on traditional developmental education classes that use lectures, recitation, and "skill and drill" and that tend to be geared to academic math and English rather than to technical or occupational programs or skills. The emphasis on learning in context is a response to research that indicates that these instructional methods are motivating, can help students learn work-related soft skills as well as basic academic skills, and can prepare students for the realities of the world of work that led to their coming to the college in the first place.

Community colleges are experimenting with different ways to revise curriculum and program content to promote contextualization of developmental education, particularly in occupational or technical skills programs. Contextualization is frequently one element of a broader package of instructional and structural innovations that include: learning communities of developmental students who take classes together; more labs and applied learning opportunities in the classroom and, where possible, in workplaces; Vocational Adult Basic Education (VABE) and Vocational English as a Second Language (VESL), which use occupational fields as a context for learning basic literacy skills or English language acquisition; and integration of developmental and content learning, in which basic skill development is not taught as a separate course but is embedded into academic or occupational courses.

Working with employers to create links to job advancement: Most low-wage workers need developmental programs that are directly linked to job advancement — either getting a first job or getting a better job. For reasons of both time and motivation to learn, adults with low academic or English language proficiency need ways to improve skills and move toward employment simultaneously. They need ways to move quickly into and back out of school, having learned skills and earned credentials that matter to local employers who can provide jobs. More successful programs understand the local labor market, identify the needs of local employers with labor needs in entry- or second-level jobs, and create opportunities for successful completers to earn performance-based certificates, focused on skills identified by employers, that pay

off in the labor market. To do this, colleges need to reach out to local industries and employers regularly and effectively, bringing employers onto campus, using employers to react to and approve the curriculum, and eliciting clear understandings between employers and the college regarding skills needed and opportunities available to those who earn credentials.

Bridges to credit-level programs: Contextual learning, and even contextual learning in programs with close ties to employers, is not by itself a guarantee of significantly better performance in helping working adults earn college degrees or certificates. As noted above, the creation of certificates that employers value is critically important, so that adults can verify that they have developed valued skills. In addition, developmental education programs need to be aligned and linked to credit programs and credentials. Some of the most innovative approaches embed developmental requirements in the occupational or academic program, so that the metaphor of a "bridge" is not apt. Others are blurring the boundaries between credit and noncredit courses by giving students the choice at the outset of taking a course for credit or not. Still others create well-designed intensive "bridges" that lead quickly into degree or certificate programs in the mainstream division of the college.

Contextualized instruction can improve completion rates for developmental classes and sequences, but without clear and transparent pathways into credential programs, there is unlikely to be significant improvement in the percentage of students earning college credentials. For this reason, MDRC should look for programs that combine the three program elements described above: contextual learning; close ties with employers, including their involvement in the design of credential programs; and clear pathways into and through the mainstream degree and certificate-granting divisions of the college.

In the following profiles, a number of approaches are described for accelerating and improving college developmental education programs to meet the needs of working adults and increase access to credential programs. These include:

- Integrating ESL and basic skills instruction into occupational certificate programs;
- Combining focused work-related basic and life skill instruction with an internship that yields high-wage employment after only a few months;
- Creating occupationally focused bridge programs that use the industry as context for needed developmental work and that link students to industry-credential programs in high demand;
- Partnering with the ABE system to create a bridge from their programs into college credential programs; and

- Using distance learning to offer basic skill instruction at the worksite to entry-level workers.

Lessons from Innovative College Programs

CABRILLO COMMUNITY COLLEGE VESL: BRIDGES FOR NON-ENGLISH SPEAKERS

Cabrillo College in central California serves a heavily Hispanic population, particularly at its rural Watsonville campus. In partnership with local government, community groups, and other educational institutions, Cabrillo has developed several programs that integrate ESL instruction into a sequence of courses that lead to occupational credentials at the college.

The entry point for many non-English speakers is an open entry-open exit Vocational ESL program built around work. Students are assessed upon entry into the program and receive information on the career pathways available to them through Cabrillo and its partners. They then begin English instruction in the context of a world of work course. After demonstrating basic language competencies, they can move into one of three occupational modules: a pre-Certified Nursing Assistant (CAN) medical careers program, careers with children, or construction. These modules continue the ESL instruction in the context of a particular career path.

Students who complete these modules can move on to more advanced training, including the Achieve program, a year-long program for mostly Latino English language learners that teaches English in the context of preparing for office work in a simulated office environment. This small program — accommodating 20 to 25 students a year — has both high retention and placement outcomes.[13] The childhood careers program is designed so that the first few modules are taught in Spanish, with English instruction replacing Spanish as the student progresses. A person who completes this program will be able to move into the college's mainstream early-childhood education offerings and will know what it takes to advance to management or administrative positions in early childhood education.

The VESL introductory module (called the Partnership for Integrated Language and Occupational Training — PILOT) has served about 350 students since it was launched a few years ago. At present, many students do not continue on to either the second-tier programs or the advanced certificate training. Rock Pfotenhauer, Cabrillo's Dean of Career Education, believes that advancement to successive modules would improve if the modules were shorter, the programs better aligned with workplaces in the county, and learning communities established to provide peer support for new students.

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[13]Gruber et al., 2002.

DENVER COMMUNITY COLLEGE ESSENTIAL SKILLS PROGRAM: A ROUTE TO VOCATIONAL CERTIFICATION AND HIGH WAGE JOBS

The Essential Skills Program (ESP) is the central program of the nonprofit Workplace Learning Project within the Center for Learning Outreach at the Community College of Denver. The Center's mission is to prepare unemployed and underemployed individuals for careers in high-demand occupations through a balanced program of work readiness, vocational training, case management, and paid internships with partnering companies.

ESP combines work and learning and teaches basic skills and employability skills in the context of four career pathways: information technology, early childhood education, financial services, and community health care. The program is characterized by occupational training in high-demand occupations; a learning-community, cohort approach; intensive career counseling and student support services; strong partnerships with employers; and workplace internships. While a high school diploma or GED is not required, students must have ninth-grade reading skills to enter two career paths and seventh-grade reading skills for the others.

The program is an intensive four-month program. The first month is comprised of 35 hours a week of classes on work readiness and foundation skills. The next three months combine a 24-hour-a-week paid internship with 15 hours a week of vocational training. Core classes in reading, writing, speaking, communications for the workplace, and computers are taught in the context of vocabulary and problems related to each career field. All courses earn college-level credits and completers of the multi-occupational vocational certificate earn between 19 and 26 credits. After the classes are over, participants are given job placement assistance for full-time employment and post-placement retention services.[14] There is a consistent focus on career counseling to help students develop plans to continue further education and training linked to career advancement.[15] The program has had excellent results in terms of completion and employment, working with a population with multiple barriers to success — 78 percent completion in the third year, 72 percent retention in employment after six months, 40 to 57 percent of participants earning the 16-week vocational certificate, and positive wage progression over time.[16]

However, advancement toward further educational credentials is a more complex story. About 25 percent of completers take some additional courses toward a degree, but the vast majority of ESP students use the program for employment and do not return for courses. Since most of the participants do not have a GED when they enter the program and leave without one,

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[14]Protopsaltis, 2002.
[15]Fitzgerald, 2000.
[16]Protopsaltis, 2002.

moving into the mainstream of the college is difficult. And with full-time employment the very positive result for so many participants, the incentive to earn a GED and move up lessens with labor market success. This dilemma faces most effective occupational certificate programs; success in moving people into employment frequently reduces participants' demand for access to further college programming.

West Side Technical Institute: A Bridge to Advanced Technical Training Programs

West Side Technical Institute (WSTI) in Chicago, part of Richard J. Daley College, provides local residents with technical training that can lead to high-paying jobs. Its advanced technical certificate programs include manufacturing, office technology, and computer graphics.

Approximately 80 percent of the 1,500 students seeking WSTI training each year lack the ninth-grade reading and math skills necessary to enter advanced certificate training programs. In 2001, in response to the slow pace and poor results of traditional ESL and GED programs, the college designed a series of contextualized developmental bridge programs to help students quickly advance to college-level technical programs and improve skills necessary for job advancement. Three programs were created to address the needs of different segments of the low-achieving population served by WSTI. A VESL program serves students with limited English language proficiency and fourth- and fifth-grade-level literacy and math skills. A Workplace Basics program is designed for students who score between the 6.0 and 7.5 grade level. Technology Career Bridge programs in manufacturing and information technology prepare students with skills just below those necessary to enter college-level technical programs for skilled employment and credentialed postsecondary education and training.[17] These contextualized programs, designed with input from both employers and college faculty, are offered in community-based settings where case management and job placement are part of the package.

In 2001, West Side Tech served 500 students in programs geared to those with scores in the Tests of Adult Basic Education (TABE) below the ninth-grade level required for the advanced technical certificate programs. Of these, 300 raised their basic skills enough to enter a certificate program. The college sees this effort as a way to create a better "feeder" of college-ready students for credit programs, which could boost enrollment and retention in college-level programs.[18]

By carefully segmenting its program offerings and tailoring them to different populations, the initiative is increasing the odds of completion and advancement. To address one of the challenges also faced by the Denver Community College program, WSTI is introducing this

[17]Jenkins, 2002.
[18]Jenkins, 2002.

year an intensive GED Prep program modeled on commercial test preparation programs. Designed to help successful students earn the GED they need to be awarded a certificate or degree, it will be offered concurrently with the advanced certificate programs.

Program consultant Davis Jenkins of the University of Illinois at Chicago is concerned about the difficulty of sustaining and expanding these bridge programs. Funding is a serious challenge; these programs tend to cost more than traditional adult education programs, particularly the 320-hour Technology Career Bridge designed for those who are closest to being ready for the advanced certificate programs. In the current climate of education and training funding and priorities, and faced with entrenched interests and inertia from the adult education establishment and, to some extent, from the mainstream college leadership, finding a sustainable funding stream for this and similar efforts poses a serious challenge.

BERKSHIRE COMMUNITY COLLEGE PROJECT LINK: BRIDGING FROM THE ABE SYSTEM INTO THE COLLEGE PROGRAM

At Massachusetts' Berkshire Community College (BCC), over 70 percent of entering students lack the literacy, computational, analytic, or time management skills necessary for placement or success in a college-level curriculum. To improve access and success in credentialed education and training, BCC created Project Link, an innovative partnership with the region's adult basic education providers.

Project Link provides one semester of targeted developmental courses for students who are at least 19 years old and have attended one of Berkshire County's ABE, ESL, or job training programs. It is targeted to individuals who have successfully completed a GED but are still at-risk of not succeeding in college because of weak basic or study skills. The program involves close collaboration with ABE providers in recruitment and assessment and for the provision of student support services. In additional to developmental courses, students attend a seminar designed to enhance their ability to succeed academically and socially in a college environment, with instruction in study skills, applying for financial aid, stress management, career planning, test-taking strategies, and computer training.

As a result of this collaboration, transition to college has become embedded within each of the ABE programs in Berkshire County. While Project Link is small, serving about 80 people a year, 53 percent of participants completed the program and 71 percent of the completion group enrolled in a degree program at the college. This model does not require significant changes in the way the mainstream college is organized to serve adult students. It does, though, hold out the possibility of better retention and success in college programs for students who are close to college-ready but need confidence-building, targeted skill development, and some understanding of what it takes to succeed in college. It is a model that can be used to create bridges from ABE and ESL providers, as in this case, or as a transitional program that is part of the col-

lege's own mix of programs, much like the first term of Portland Community College's (PCC) Prep program (see below).

Information Technology Bridge Programs at Various Colleges: Preparing Students for Industry-Recognized Credential Programs

Cabrillo Community College in California is one of a number of colleges that has created or plans to create an information technology (IT) bridge program, targeted to individuals who are interested in pursuing a career in the IT field but who are not well-enough prepared to succeed in the industry-recognized credential programs frequently offered through community colleges. These programs address the same problem that West Side Tech experienced prior to creating its bridge programs: the gap between individuals' interest in a technical occupational training program and their skill levels in basic math, reading, writing, and communication. The programs focus on IT for several reasons, including strong employer demand and student interest. Perhaps most important, they choose IT (as they do certain allied health professions) because of the existence of a well-developed set of industry-recognized credentials that can lead to high-paying jobs or further credentials with value in the labor market.

Cabrillo's Digital Bridges Academy is geared to 17-24 year-olds, most of whom are Latino. The focus is on high school dropouts, many of them single parents or noncustodial fathers. The program combines contextualized instruction methods tied to the IT field with soft-skills training that helps participants see themselves as people who can succeed in a technical program. The program integrates supports and services available through CalWORKs, the Workforce Investment Act (WIA), and the criminal justice system in the Watsonville area. About 50 to 100 students participate each year. With developmental assistance from the Irvine and Packard Foundations, the college is trying to design a program that is replicable and sustainable and that can be exported to other colleges.

Shoreline Community College, located just outside of Seattle, has designed a similar program but has not yet found the resources to launch it. Shoreline has developed a four- or five-quarter bridge program to help students who are interested in the IT field but who lack adequate basic and technical skills gain entry to credentialed education and training programs. The program would provide an integrated sequence of ESL, basic math, reading and writing, information technology, customer service, and employability skills to prepare students for college-level IT programs available at Shoreline.

In California, the Bay Area IT Consortium links 26 colleges that are looking to strengthen or create career ladders in the IT field. The consortium has found that ESL, work experience, and computer proficiency are a high priority for local employers. Partnering with the Bay Area Council, the consortium is embarking upon a campaign to get 5,000 people (starting with CalWORKs and WIA participants) to achieve a basic level of computer proficiency.

Targeting 52 low-income neighborhoods, the effort involves providing performance-based assessments of spreadsheet, file management, Web usage, and other skills to local residents, along with opportunities to prepare for the assessment through some short free courses. The hope is that employers will recognize and use in hiring decisions the certifications of proficiency that individuals will earn.

ANNE ARUNDEL COMMUNITY COLLEGE AND HOSPITALITY TV: E-LEARNING UPGRADE TRAINING AT THE WORKPLACE

Anne Arundel Community College in Maryland and the company Hospitality TV are partnering in a U.S. Department of Labor demonstration project to create a Career Ladder Program for Entry-Level Health Care Workers. What is unique about this effort is its use of satellite and on-line distance-learning technology to provide college-administered basic skills training at the workplace to over 300 employees at 27 hospitals in 5 states. The curriculum is being developed and instruction managed by the college. HTV takes care of the technological aspects of the program. The hospital staff serves as the focal point of instructional contact and support for participating students.

The program is targeted to entry-level hospital workers with the dual goals of improving TABE scores by one grade after completion of the introductory course and raising wages for participants by 10 percent through promotion or merit increase.

This new initiative is included here for several reasons. It is an innovative approach to learning at the worksite, geared to basic skill development in the context of work for incumbent workers. In addition, it is an intriguing partnership among a college, a technology company, and a number of employers who, together, can enroll enough workers for the program to reach a significant scale. However, there is little indication that this effort will lead participants to further education or entry into a college credential program. The college connection is not local and it is with the noncredit adult education division. Thus, while intriguing and potentially powerful as a learning program for low-skill working adults, this kind of program is unlikely to fit with MDRC's interest in advancement into and through college credential programs.

Curricular and Program Redesign of College Credential Programs

Most low-wage working adults in credentialed postsecondary education and training have to balance work, family, and school. They are part-time students who attend college intermittently and who are seeking short-term career advancement benefits. Traditional degree programs are not designed to meet the needs of such students. The concept of a two-year degree, which assumes that students attend full-time, is almost obsolete. For nontraditional low-wage

working students, an Associate's degree is, in reality, a four- to five-year degree.[19] Many who persist enter, exit, and reenter multiple times. Most, however, do not persist and leave without any meaningful certificates or credentials.

In response to this challenge, some colleges are experimenting with ways to make it easier for students in credential programs to earn their certificate or degrees with less total time in classes or through shorter, sequenced modules that yield interim credentials with value in the labor market. These approaches are designed to increase the likelihood that low-wage working adults with college-ready skills will persist in attaining advanced certificates and degrees. Such approaches enable students to work toward long-term credentials by completing manageable short-term modules that are articulated to advanced certificates and Associate degrees. Unlike traditional degree programs, such pathways offer, at key milestones, certificates that are valued by employers and linked to career advancement.

Promising initiatives that accelerate, shorten, or modularize credential programs frequently share a number of design characteristics:

- Integration of noncredit and credit instruction;
- Competency-based curricula focused on both educational and career advancement;
- Multiple entry and exit points that allow students to combine work and learning;
- Pathways that lead through a sequence of intensive, competency-based modules to advanced certificates and Associate degrees;
- Certificates at progression milestones that are valued in the labor market and directly linked to career advancement;
- Partnerships with employers and industries in high-demand occupational sectors that pay above-average wages and provide opportunities for career advancement;
- Intensive career counseling and transparent pathway navigation support;
- Flexible scheduling at night and on weekends; and
- Enhanced student support services.

[19]For this reason, we do not use the term "two-year" degree to describe an Associate's degree.

Some approaches turn to on-line or other e-learning approaches for some part of program instruction to make it easier for students to participate at home, in the community, or at the workplace. Others use work-based learning to make it easier for students to work and learn concurrently rather than sequentially.

Because it is difficult and time-consuming to create new credit-level courses and credential programs, colleges frequently create more modularized career pathways by breaking existing credential programs into segments that combine existing courses in new ways. To create a link to career advancement, pathways focus on occupational clusters that have, or could create, career ladders based on competency attainment in progressively higher levels of education and training.

In some fields, such as information technology, well-defined career ladders exist, linked to industry-recognized certificates. For example, Mouse Certification and A+ Certification open the door to high-wage, entry-level employment. Advanced training in Web design and network administration are linked to employment in higher-skill, higher-wage positions. Microsoft Certified System Engineer, Cisco Certified Network Administrator, and UNIX certification are directly linked to further advancement up the career ladder.[20] There are also career pathways in fields such as health care and manufacturing. In other industries, it is necessary to develop agreements with local employers and industry associations that they will recognize completion of a particular sequence of courses in a long-term credential program as a milestone for career advancement.

The following examples describe a number of distinct approaches to shortening, accelerating, and modularizing credential programs. These include:

- Embedding developmental skill acquisition into mainstream courses so that degree or certificate students can meet those requirements flexibly and as part of their mainstream program;
- Redesigning credential programs so that working adults can take them in the evenings or on weekends, with on-line or independent study components adding further flexibility;
- Revamping a two-year degree program into a shorter occupational-certificate program designed with and valued by local employers;
- Developing workplace-based e-learning programs that can fit into working adults' schedules; and

[20] Alssid et al., 2002.

- Breaking longer degree or credential programs into shorter modules with interim credentials that employers value and that can be taken sequentially over time to earn the full certificate or degree.

Innovative College Program Models

SINCLAIR COMMUNITY COLLEGE READ/WRITE CONNECTION: EMBEDDING DEVELOPMENTAL LEARNING IN MAINSTREAM CREDIT CLASSES

Sinclair Community College in Dayton, Ohio, is pursuing a range of institution-wide options to redesign developmental education in ways that integrate ESL and basic skills instruction with credit-level academic and occupational courses. Developmental Studies, which is the largest single academic department at Sinclair, is taking part in the same budget process as mainstream academic and occupational programs. Developmental education programming is seen as critical to the success of credentialed education and training. The college leadership believes that high attrition rates in academic and technical credential programs can be countered with strategies to make contextualized instruction in reading, writing, math and study skills part of credit programs. A particular concern is the high attrition rate in introductory courses in allied health, engineering, and chemistry.

To address this challenge, a strong collaboration has been forged between faculty active in developmental education and those involved with mainstream education and training. Developmental faculty work closely with the allied health, mathematics, engineering, and chemistry departments to co-develop a range of innovative strategies to help students improve basic skills and successfully complete credit-level courses in the context of academic career paths.

The Read/Write Connection — developed collaboratively by Developmental Studies and Allied Health faculty — exemplifies the strategy of embedding basic skill development into mainstream classes. The goal is to improve retention and success in the introductory allied health course, which students must pass in order to take further allied health courses. This enables more students to enter certificate and degree programs in the field. The team-teaching partnership between Developmental Studies and Allied Health faculty, which serves more than 300 students each year, enables students to improve reading and writing skills while learning course content. Three on-line learning modules help students improve the reading, writing, and study skills they need to succeed in the class, such as the ability to read scientific materials and meet college writing standards. Course content and assignments provide the context for skill development. Developmental instructors provide on-line feedback on drafts of course papers, giving students an opportunity to improve reading and writing skills by putting them into practice. While evidence is anecdotal, the Read/Write Connection appears to be improving student performance and outcomes in the introductory allied health course, while helping them develop skills that are necessary for success in other classes.

McHenry County College Integrated Manufacturing Program: Credentialed Advancement Through Integrated Curriculum and Flexible Scheduling

McHenry County College, in Crystal Lake, Illinois, designed its integrated manufacturing management program so that full-time workers could earn two certificates and an Associate of Applied Science degree by attending school part time one evening a week over a four-year period. Business and industry partners work closely with the college to develop an integrated curriculum, make courses available in workplace sites, and provide work-based internships and independent study credit linked to specific learning goals developed with supervisors.

The English, speech, math, science, social science, humanities, and manufacturing management departments work together to develop integrated courses that use contextualized project-based learning strategies to foster learning in oral and written communication skills, teamwork, problem solving, computation, and creative thinking. The program is organized around cohort learning communities, with cross-disciplinary team teaching that integrates abstract learning with practical application of knowledge and skills.

The program has achieved significant gains in program completion, GPA, and certificate and degree attainment. While occupational programs generally have a completion rate of less than 20 percent, the McHenry program has issued 155 certificates of completion in the five years since it was created. More than 70 percent of the 115 students entering the integrated manufacturing management program have earned one of more certificates. In the past two years, 67 students have received Associate's degrees, a degree completion rate of 58 percent. In contrast, there were only 42 graduates in manufacturing management in the 15 years before the program was restructured.

University of Alabama Fort Smith Manufacturing Technology Management BA: Flexibility through Modularization, Self-paced Learning, and Competency Assessment

On January 1, 2002, Westark Community College became the University of Alabama Fort Smith, a four-year public university "focused on a community college mission." The college's Manufacturing Technology Management Bachelor of Science is designed to enable full-time workers to complete a Bachelor's degree in less than four years while attending school part-time at night and on weekends. The program combines a modularized curriculum, contextualized competency-based learning focused on skills identified by employers, applied project-based learning and authentic assessment, flexible scheduling, self-paced instructor-assisted learning, and strong partnerships with employers.

The program, which serves about 40 students each year, is designed to enable students, most of whom are employed full time as front-line supervisors, to develop skills and credentials necessary to advance to plant managers. The small scale relates directly to the narrow focus on one occupation. The college is developing a similar program in the information technology field. Because of its focus on a broader career field, the new program will be able to serve 300 students. Admission to the program requires demonstration of college-level reading, writing, and math skills. While this program is not designed to serve low-wage workers, it demonstrates a combination of promising practices that could be used to help at-risk adults progress to higher levels of credentialed postsecondary education and career advancement.

Students can complete modules, which relate to specific competencies that are mapped to skills identified by industry, at their own pace. They can capitalize on their knowledge-base and prior experience and do much of the work independently off campus. Manufacturing resource rooms that contain all the technology and materials for completion of the program are open 8:00 A.M.-5:00 P.M. each weekday as well as four nights and Saturdays. Learning is highly contextualized and focused on application of skills and knowledge. For example, the module on lean manufacturing has students go to plants, conduct an evaluation of the work process, and report back to plant managers on ways to streamline operations. Students complete modules by demonstrating mastery of competencies through authentic assessments focused on application of learning. The assessment for completing the lean manufacturing module, for example, would give students scenarios and ask them to develop a plan to improve operations. The combination of competency-based learning and authentic assessment gives employers assurance that students would be effective employees.

While the program is modularized, it does not provide many interim credentials that are linked to career advancement. After 30 credit hours, or approximately one year, students can receive a technical certificate. Students do not receive any further credentials until they complete a Bachelor's degree. The program is considering providing credentials at a larger number of milestones, such as an Associate's degree after 60 credit hours.

Anne Arundel Community College Business Support Specialist Program: Accelerated Cohort Model

Anne Arundel Community College (AACC) in Arnold, Maryland, watched its two-year secretarial science Associate's program "die on the vine." In response, the college revamped the curriculum and program structure and turned it into a "business support specialist" certificate program following the model of proprietary school programs.

The college decided to create a 16-week program that runs five or six times a year. Initially developed as a program for dislocated workers and offered during daytime hours, the program now serves a large number of incumbent workers seeking to improve their skills so they

can advance in their careers. Several sections are offered in the evening. Local employers are quite supportive of the change and the program, which now serves 75 to 150 students a year. Some employers in the area send workers to the program on company time. In effect, an Associate's program has been downgraded to a certificate program — but in the process, a program no one wanted has been revived and is helping dislocated, emerging, and incumbent workers advance to better jobs.

The program combines computer skills, soft skills, and technical training on office systems. Like many classes at Anne Arundel, the courses are offered on both a credit and noncredit basis. Students can choose at the beginning of the course whether they want to take it for credit and meet the additional course requirements that entails. Students can also take a departmental exam at the end of the course for retroactive credit. Credits earned in the program can be applied to other credential programs at the college.

Anne Arundel administrators refer to this as an "accelerated cohort" model, combining accelerated coursework, block scheduling, and peer support via cohorts. Retention in the program is higher than for most other occupational programs at the college, according to Andrew Meyer, an AACC Vice President. The college is redesigning a hotel front-desk program and a culinary arts program for a local Job Corps center using similar design principles. The college is looking for program areas where students do not have to attend school in traditional 15-week semesters or start at the same time the rest of the college.

West Hills Community College Psychiatric Technician Program: Accelerated Program and Integration of Work and Learning

West Hills Community College in Coalinga, California, is located in the agricultural San Joaquin Valley. In response to the opening of a new state psychiatric facility in the area, the college has created a one-year accelerated program that prepares completers for the state psychiatric technician licensing exam and gives them 54 of about 70 credits they will need for an Associate's degree. Like most health care training programs, this one combines theory classes (14 hours a week, for each of the three 16-week trimesters) with clinical placement (21 hours a week). The program has no prerequisites beyond a high school diploma or equivalent.

About three-quarters of the students work for pay in addition to their 35-hour school responsibilities. About half the initial cohort of 40 students have been placed in paid weekend jobs at a health care facility. Others work wherever they can find employment. The first cohort of students was predominantly younger Hispanic females, though the second cohort includes about a half-dozen students right out of high school and another half-dozen over age 55. The program has attracted career-changers with BAs as well as auto mechanics and agricultural truck drivers looking to raise their skills and income. Program graduates find work paying in the range of $30,000 – $40,000 a year.

Twenty-seven of the first forty students graduated. Another five are returning in December after having stopped out partway through the program.

This program is instructive for several reasons. First, it is an example of a particular kind of acceleration — intensification of time required in the program but overall shortening of the program length. The emphasis on combining work (paid and unpaid) with learning is attractive to adults. The program's scale also demonstrates the dilemmas involved in tying programs to labor market realities. The program's attraction is the promise of a good job in local facilities; this, of course, limits the number of students who can be admitted into the program.

Portland Community College Regional Workforce Training Team: Short-term Modules Linked to Employment and Career Pathways

Portland Community College (PCC), in Oregon, has implemented a number of modular curricula and credentialing pathways that can be entered by students who are ready for college as well as students who completed enhanced developmental programs that are articulated to mainstream modular programs. In each case, PCC's goal is to help students quickly get a job (or get a better job) and then move into mainstream education and training that leads to advanced certificates and degrees linked to career advancement. There is a strong emphasis on career counseling and focusing learning around career paths.

PCC redesigned its Machine Manufacturing Technology Associate's degree and certificate programs into an articulated sequence of open entry-open exit modules. Courses are organized around sets of skills identified by employers, and students complete modules by demonstrating mastery of performance outcomes linked to industry standards. Flexible, self-paced scheduling allows students to take classes and labs when it is convenient. Students can receive interim certificates for completing modules that are linked to career advancement. Students who take intensive one-term modules that are building blocks to degrees are eligible for financial aid.

In partnership with Mount Hood Community College and the local Workforce Industry Board, PCC created a Regional Workforce Training Team that provides short-term training and enables adults with limited English proficiency or low basic skills to quickly develop skills that prepare them for a job and for mainstream education and training. PCC has reorganized existing college degree programs in accounting and bookkeeping, criminal justice, metals manufacturing, and phlebotomy into short-term modules leading to advanced certificates and degrees linked to career advancement.

Cohorts of students enter through an initial one-term module to take a reorganized sequence of existing courses leading to an employer-recognized certificate and employment in the field. Because these short-term modules are part of existing college certificate and degree programs, students are eligible for financial aid and WIA funding. Students also earn college cred-

its toward certificates and degrees and are encouraged to continue their education in modular pathways at night and on weekends.

SHORELINE COMMUNITY COLLEGE: THE JOB LADDER PARTNERSHIP FOR ADVANCEMENT THROUGH SHORT-TERM CREDENTIAL PROGRAMS

The Job Ladder Partnership, a consortium of Shoreline Community College and five other Seattle-area community colleges, provides pathways to advancement for low-income adults with low skills. Participants begin with a short-term, pre-employment, developmental, or ESL basic skills program and advance to credentialed certificates and degrees. The program is designed to help students quickly acquire basic academic and workplace skills necessary for initial employment and enter pathways to advancement that combine work and learning. At every level, there is a clear link between education/training and career advancement.

The 12-week pre-employment program is designed to help students develop workplace and life skills at night or on weekends. Learning is focused around three high-demand career pathways — manufacturing assembly, office occupations (information technology), and health services — that offer relatively high entry-level wages and opportunities for career advancement. The competency-based curriculum is designed to meet skill requirements identified by employer partners. Students who demonstrate 70 percent proficiency in all classes receive a certificate. They also are placed in jobs based on their performance and receive retention services and career counseling to help them chart a course to career advancement through credentialed education and training. The program provides an entry point to credentialed modular pathways to advancement.[21]

The Job Ladder Partnership provides modular pathways to advancement that combine work and learning in manufacturing, customer relations, health services, and information technology. Advancement reflects skills acquired in the workplace as well as the classroom. There are multiple points of entry, beginning with students who lack the basic skills necessary for credit-level programs and have little or no employment history. Strong partnerships with employers identify skills and education or training necessary for career advancement at a broad range of levels. Students can take courses, which build on their own particular partnerships with employers, at any of six community colleges. Each college provides staffing to build and maintain partnerships and provide ongoing career counseling, job placement, and retention services.

Career Pathway Passports, which are computerized career planning tools, help students develop career advancement goals and navigate work and learning to progress toward their

[21] Fitzgerald, 2000.

goals. Each passport lists career opportunities and training programs in each of the pathways so students can see how far they have come toward their goals and chart next steps.

Programs for Young High School Dropouts or Graduates who are Still Not College-Ready

This research discovered an increasing number of community colleges are exploring ways to help young people — high school dropouts, high school students, or high school graduates — who are not ready for, or who need help to succeed in, college develop the skills and experience they need to move seamlessly into college credential programs.

Dual-enrollment programs are one version of this trend, though most dual-enrollment programs are available only to high school students who are already performing well in high school and are likely to succeed in community college coursework. The Early College High School Initiative, funded by the Bill & Melinda Gates Foundation and other foundations, is a variant of this approach, designed to minimize the transition into postsecondary credential programs by internalizing the transition into a small school that straddles high school and college. To the extent that some of the networks creating these new schools target at-risk, low-performing students, these efforts are relevant to the MDRC project scan. One of these programs, the one at Washtenaw Technical Middle College, is highlighted below.[22]

Two models have also been identified that present a different way of enrolling out-of-school youth who are not ready for college in a program that can move them through a seamless progression into the mainstream college program. These are PCC Prep in Portland and Innovation Solutions for Urban Systems (ISUS), a program of Sinclair Community College.

WASHTENAW TECHNICAL MIDDLE COLLEGE: EARLY COLLEGE HIGH SCHOOL FOR AT-RISK STUDENTS

Washtenaw Technical Middle College (WTMC) is a public charter secondary school that serves 265 at-risk, high school-age students on the college campus in Ann Arbor, Michigan. The only Michigan school to be chartered through a community college, WTMC combines high school and college classes. It enables students to develop skills necessary for success in college-level courses and to pursue a high school diploma and college credentials simultaneously in classes organized around career pathways aligned with state education standards and the college's certificate and degree programs. To graduate, students must earn both a high school diploma and an Associate's degree or technical certificate in one of thirty-seven programs within

[22]Washtenaw Technical Middle College is not part of the Early College High School Initiative, which was launched in early 2002, but uses a related model.

six major career pathways. Students typically take two years to graduate with a certificate and three years with an Associate's degree.

The program combines competency-based, core transition courses, career seminars, study-skills classes, soft-skills instruction, and a strong advisory system that helps students successfully navigate the transition to college-level education. There is a particular emphasis on improving reading skills, which are seen as a major obstacle to success at the college level. WTMC is explicitly designed for students who need to earn while they learn and incorporates workplace internships as a core educational component. Students are attracted by the opportunity to earn a college degree along with a high school diploma and by the freedom and flexibility of the life of a college student.

Many of the students, who are referred to WTMC from 50 school districts, have diagnosed learning disabilities, are special education students, or lack interpersonal skills to interact in a learning community. Most have low literacy skills and come from chaotic homes. Despite its at-risk population, WTMC students are the best-performing group on the Washtenaw Community College campus. About 80 percent of WTMC students pass their college courses with a grade of C or better, and the college is examining the school's curriculum for possible models and lessons to incorporate into other programs. In 2001, 56 percent of seniors graduated with an Associate's degree, and 73 percent earned at least a postsecondary certificate in addition to a high school diploma. That same year, WTMC had the highest number of students certified on MEAP, Michigan's high-stakes standardized test.

Portland Community College PCC Prep: Multiple Pathways for High School Dropouts to College Credentials

PCC Prep is an innovative alternative high school program that serves approximately 400 at-risk youth who are 16 to 20 years old and have dropped out of school. The program enables out-of-school youth to simultaneously earn significant college credits with free tuition-and a high school diploma. Accelerated advancement enables overage high school dropouts to get back on track to attain postsecondary credentials in a timely fashion.

Students with eighth-grade literacy and math skills can enter College Bound, an intensive one-term program of college preparatory courses designed to bring writing, reading, math, study, and career planning up to college level. After completing these courses, students move into mainstream college classes that count toward both their high school diploma and an Associate's degree. Career pathways that are articulated to state high school requirements and PCC degree programs provide a navigation system that helps students advance quickly to graduation.

As a complement to College Bound, PCC Prep offers two other programs to meet the needs of high school dropouts with very low basic skills. Nonnative English speakers with liter-

acy skills as low as third-grade level can enter PCC Prep through the MAP pathway, a sequence of contextualized ESL courses that helps them develop the basic skills necessary to enter College Bound or pursue a GED. Native English-speaking students who lack skills necessary to enter College Bound, or who want a GED, can enter the YES! developmental pathway, which is designed to help students with as low as third-grade literacy skills develop the requisite skills . College Bound and the GED are both seen as pathways to mainstream postsecondary education and training.

PCC's GED programs are explicitly designed as a step toward postsecondary education and training rather than as stand-alone programs with a GED diploma as a final destination. Students who complete a GED at PCC are motivated to continue their education at the college by receiving one tuition-free term, of up to 19 credit hours, which they can use within the first two terms after completing their GED. GED graduates are also eligible for financial aid to pursue credentialed education and training modularized.

College Bound has produced impressive results with students who have a history of school failure. The 378 students enrolled in College Bound during the 2000-2001 school year entered the program with an average age of 17, an average of 7.37 high school credits earned, and a high school grade point average of 1.34. Youth who routinely skipped classes in high school maintained an average attendance of 94 percent in College Bound. Almost all students (98.6 percent) improved their reading level during the one-term program, and 77 percent reached the proficiency level required to enroll in college-level classes. Students made similar progress in math, with 100 percent passing at least one math course, and 25 percent achieving the proficiency required for college-level math courses. More than 20 percent made the PCC Dean's List. More than half of the College Bound students enrolled in 2000-2001 continued on in the program in mainstream college classes.

Since PCC Prep is relatively new, with the first cohort entering in the spring term of 2000, it is still too early to evaluate persistence toward graduating with a high school diploma or the college credentials or credits that graduates earn.

Sinclair Community College ISUS Program: Adding College Credentials to Alternative Education for Out-of-School Youth

Many programs for out-of-school youth consider a GED or high school diploma the end of their educational responsibility to participants. Sinclair Community College takes a different view. It has taken a lead role in the countywide out-of-school youth initiative in an effort to find ways to transform alternative education for high school dropouts into pathways leading to high school graduation and credentialed postsecondary education. A cornerstone of this effort is the creation of a number of new alternative high schools organized around a range of high-demand career paths such as information technology, allied health, and tooling and machining. All have

a common goal of helping as many students as possible attain a regular high school diploma and continue their education at the college level.

Sinclair's involvement in linking out-of-school youth initiatives with college credential programs is most evident in a specific partnership between Sinclair's engineering department and Improved Solutions for Urban Systems (ISUS), an alternative education provider that was operating a successful YouthBuild program. The partnership with Sinclair made it possible for ISUS to transform the program into a Trade and Technology Prep charter school organized around the concept of High School Plus: students take courses from Sinclair faculty and earn credits toward college credentials. The goal is that students will graduate with a high school diploma plus industry-recognized certificates or college degrees.

The charter school employs a highly contextualized curriculum that combines knowledge and skill acquisition in the classroom with application of learning to real world situations. Students spend half their time in academic classes and the other half doing hands-on construction work. Students receive a daily stipend that starts at $12 a day and can grow to $50 a day for students who have finished all their high school work and are engaged in their college work. The program serves 240 out-of-school youth each year — many are overage, living on their own, and court-involved. Trade and Technology Prep has a 67 percent retention rate for a student body where every students had previously dropped out.

Implications for Opening Doors Research

As the descriptions of initiatives presented in this paper demonstrate, efforts to redesign college programs to be more responsive to the needs of working adults and to result in more college credentials vary greatly along a number of dimensions. The clearest distinction is based on the population for which the program is designed: adults who are not ready for college success; working adults who have college-ready basic skills but who face other barriers, such as inflexible schedules; and young adult high school dropouts who want to earn both high school and college credentials.

In addition, several other variables distinguish the program models described above. These include:

- the age, work status, and other characteristics of the targeted population segment;
- the career pathways that provide a context for learning; the skill levels at which the program first enrolls students;
- the students' expected skill levels and credentials earned at program's end;

- the level of development of pathways from one credential program to another and from noncredit to credit programming; and
- the extent to which instructional practice is revamped.

In addition, the programs mix and match multiple interventions and practices.

These variations pose a number of important questions and challenges for efforts to identify viable candidates for a careful research study. A key issue is to determine the degree of similarity that is necessary between programs that are somewhat different in terms of whom they serve, the occupations they target, the range of advancement they promote, and the particular mix of interventions they employ. This paper concludes with a discussion of these challenges — and the presentation of some suggestions based on the research scan.

Skill levels of target population: This paper groups the innovative efforts it highlights according to one clear distinction in the population: whether it is college-ready or is in need of academic and other skill development in order to be ready to succeed in college. For a study designed to look at strategies to increase college credentials, this distinction is important. Programs that target those with less than an eighth-grade education and try to build ladders into higher level developmental or first-level occupational certificate programs face a serious challenge: the number of steps to be climbed before entry into a credential program are longer, yet adults' time horizon is relatively short. Programs that start with students whose skills are at about eighth grade are more likely to move large numbers into vocational credentials: for these, an important challenge is whether the college can recapture a large number of these certificate completers for further college work as opposed to (or in addition to) employment.

MDRC will have to decide where to focus its attention. In our view, the lowest skilled individuals are least likely to make it through college credential programs — and certainly not for a number of years. A study of effective bridge or developmental programs for the lowest-skill segment of the population might come up with important lessons about getting working adults up to college credential programs, but not into and through programs with significant labor market payoff, given the likely timeframe of a study.

This may argue for studying programs that focus on bridging strategies for those who need some extra push to enter occupational certificate programs, but who will be able to advance on their own with adequate information, supports, and transition assistance. Program redesign strategies targeted to those with high school credentials and college-level skills might also be an important area for research, but a study of more flexible and work-sensitive mainstream credential programs would be a different study than one assessing the power of programs geared to adults who are several "stepping stones" back.

The authors of this paper advise against studying programs focused on students who enter with very low skill levels, since the time frame for assessing participants' progress to college-level programs would be too long. If MDRC decides to study a bridge program for very low-skill individuals, the metric of positive outcome should be considered carefully.

It is recommended that the feasibility be explored of undertaking a study of programs that help adults who are not ready for college to develop skills for college-level programs and enter credentialed programs that enable them to earn modularized certificates linked to career advancement. Programs should serve adults who enter with seventh- to eighth-grade levels, provide a clear bridge to college-level programs, and provide modularized pathways that lead to certificates leading to career advancement at short-term milestones. Assessment should extend to completion of at least two short-term certificates. While advancement at higher levels of educational and career advancement is extremely important, we think it is premature to undertake that analysis at this time.

From the scan undertaken for this paper, the authors suggest looking closely at models that integrate English as a second language instruction in various ways into occupational or academic programs, accelerating language skill development in the context of occupational programs for which students are motivated to study and succeed. A range of different VESL models around the country break from ESL followed by credential instruction and do a creative job of integrating the two. The population needing these services is growing. And the potential for finding sufficient variety and number of programs trying comparable strategies appears promising.

Work status of target population: The programs studied for this report target different groups of adults and young adults: welfare recipients, dislocated workers, incumbent workers attached to particular industries, long-term unemployed, young adults without high school credentials. These variations often influence program design. They can also pose challenges for research design.

Programs that are targeted to upgrading the skills of full-time incumbent workers, such as the McHenry or Fort Smith programs, tend to emphasize flexible and extended part-time schooling that can fit with work schedules of those in particular industries. A different approach to those who work is to shorten or "chunk" instruction into short modules that yield interim credentials and can be combined over time into an alternating or concurrent pattern of schooling and work. One factor influencing these design choices is the work status and characteristics of the target population.

Take the example of Anne Arundel's business support program. The program was redesigned to meet changing demand: it needed to run sections for incumbent workers at night to complement the initial design of daytime classes targeted to dislocated workers. Research de-

sign would have to assess whether this variation in program cohorts might overwhelm program design effects when it came to explaining program outcomes: there might be important variations in motivation and other hard-to-capture factors that influence outcomes in the same program targeted to different groups of workers. This example identifies a challenge: a research study that is about strategies that meet working adults' particular needs must be careful not to lump together programs that might address the narrow needs of very different subgroups but be inappropriate for other subgroups.

Industry targeted by career ladder programs: While our research identified career ladder or pathway programs in a number of industries, a few industries dominated: information technology, allied health fields, child care, and manufacturing. There are several reasons for this. Certain industries have higher demand for entry-level workers. Some have clearer industry-recognized licensure or certification requirements that are gateways to higher-paying jobs within the industry. It is easier to create short-term certificate programs that lead to jobs in industries where demand is high and where those ladders are more clearly defined and education credentials are the gateways to advancement.

The need to tie programs to occupational areas and specific industries has implications for any research study. First of all, the issue of program scale is often linked directly to industry demand and needs. The better a program meets local industry's needs, the more those needs constrain the ability to grow the program. Rural Coalinga County in California, for example, cannot simply expand its psych tech program to meet student interest: it has to respond to the demand from the local hospital and ancillary facilities. Some of the most effective programs, including some of Cabrillo's industry-responsive occupational programs, will inevitably stay small, perhaps graduating 25 to 50 students a year.

Industry variation raises a challenging research question: can similarly designed programs that target different industries be combined in the same research project? Is a modular design certificate program in health comparable enough to one in IT or child care? Our first inclination is to say no. Outcomes from these programs — particularly employment outcomes — may be affected by the health of the local industry or variations in the level of skill expected of entry-level workers.

Two sectors stand out in the promising programs this scan identified: allied health and information technology. It would be possible to study multiple programs in either field and, in fact, study ESL programs and programs for native English-speakers in either field. The number of programs in manufacturing and child care appear to be more limited. The issue of identifying occupational sectors should not be important for youth programs, which tend to be less closely tied to employment outcomes and primarily use occupations as a context for learning.

The starting point and length of the pathway: It has been noted that different programs start higher or further on the pathway from noncollege ready to college success. Another variable — and one that is not always easy to determine — is the "length" of the pathway and how formal the steps are from one program component to another. At West Side Tech, the expectation is to move people into technical certificate programs. There are no expectations or mechanisms to encourage another step on the pathway to a degree. Portland Community College presents its modular sequencing as a way for adult students to take a valuable set of courses, then go to work, then come back to school, etc., until they complete their degree. However, it is too early to tell whether the understanding of the "length" of the pathway that PCC leaders articulate actually works as designed in practice.

Whether the length of the pathway matters — i.e., whether it makes any difference in terms of persistence, completion, and advancement if developmental programs are tightly linked to next step programs — is an empirical question that is still open. Is there more re-entry and advancement in certain programs than others? If so, what factors contribute to the desire and ability of students to continue to a next module or certificate course? And what factors make adults more likely to seek and persist in degree rather than certificate programs?

Variations in both the starting point of many pathways (i.e., skill levels expected at entry) and the extent to which the program is structured to move people to successful completion of one certificate or to move formally up additional steps raise research choices for MDRC. What constitutes a program — a single certificate program or a sequence of certifications? Which segment or segments should be the focus of the study: can programs targeting different segments be combined in the same research project? Should the study explore whether the formality of the linkage among modules or stepping stones from developmental to credit courses affect persistence and completion rates?

Taking the long view of success: The promising program-redesign strategies examined for this paper are intended to improve long-term outcomes such as degree attainment and advancement to family-supporting employment. Many of the new approaches have not been operating long enough to assess the long-term educational and career advancement outcomes that are of greatest interest to program developers and to researchers. This raises several questions for research design. First, what are the most meaningful interim milestones of progress and success in these initiatives? Second, how long is long enough to stay with program participants to study their labor market and educational progress over time. The Essential Skills Program, for example, does not compare wages of certificate completers with noncompleters, nor does it track how many students continue postsecondary education at a credentialed level. This is not atypical. Research design will have to decide on the right — and most practical — balance of shorter- and longer-term measures of progress and success.

Isolating the program elements to study: A program that combines contextual learning, courses offered at night and weekends in the neighborhood, integration of developmental education, and student supports into mainstream occupational courses might provide some promising outcome data. But which elements of this package of instructional, structural, locational, and other strategies are most likely to contribute to these positive outcomes? It is almost impossible to isolate the effect of discrete program elements. Moreover, finding additional programs to cluster together in a study is also complicated: Is it more important to find programs that are at the same school, in the same industry, targeted to the same population subgroup, or sharing similar ways to link credit and noncredit offering and smooth pathways to and through credential programs? These methodological challenges are complicated, and, ultimately, MDRC will decide on its primary interest and the viability of different research strategies.

Institutional and instructional issues: This scan has not emphasized some very important elements of the programs that were studied. These are the institutional, policy, and instructional issues that are also critical to sustainability, quality, and replicability. Professional development investments and approaches; curriculum development; the level of collaboration in program design, curriculum development and instructional delivery between credit and noncredit faculty; the level of institutional commitment to creating clear and transparent pathways from one level of program to the next — each of these can make a big difference in the quality of programming, the ease with which students can navigate advancement pathways, and the effectiveness of integrated or embedded models of instructional delivery.

Davis Jenkins of the University of Illinois at Chicago raises an additional research question about institutional capacity and fit. He notes that there is great enthusiasm for community colleges taking on greater responsibility for delivering bridge programs. He asks whether there is any way to demonstrate the relative efficacy of community college versus community-based organizations in the delivery of programs for the noncollege-ready. Perhaps data from the National Evaluation of Welfare-to-Work Strategies could provide some clues on this question, at least for certain kinds of welfare to work programs.

Cost and scale: Finally, the issue of cost must be raised and, by extension, the issue of scale. Some of the people interviewed for this report were very pessimistic about the potential of bridge programs to expand broadly, particularly those funded with welfare or adult education funds. They are simply too expensive, given current funding realities. Moreover, the higher level occupational/technical bridge programs are more expensive than the more generic basic skills-focused initiatives. (At West Side Tech, for example, the cost of the high-end bridge program runs to several thousand dollars per student.) This challenge to expansion and institutionalization might argue for greater focus on programs and services that are located within the mainstream of the college and are funded through mainstream higher education funding mechanisms.

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The Manpower Demonstration Research Corporation (MDRC) is a nonprofit, nonpartisan social policy research organization. We are dedicated to learning what works to improve the well-being of low-income people. Through our research and the active communication of our findings, we seek to enhance the effectiveness of social policies and programs. MDRC was founded in 1974 and is located in New York City and Oakland, California.

MDRC's current projects focus on welfare and economic security, education, and employment and community initiatives. Complementing our evaluations of a wide range of welfare reforms are new studies of supports for the working poor and emerging analyses of how programs affect children's development and their families' well-being. In the field of education, we are testing reforms aimed at improving the performance of public schools, especially in urban areas. Finally, our community projects are using innovative approaches to increase employment in low-income neighborhoods.

Our projects are a mix of demonstrations — field tests of promising program models — and evaluations of government and community initiatives, and we employ a wide range of methods to determine a program's effects, including large-scale studies, surveys, case studies, and ethnographies of individuals and families. We share the findings and lessons from our work — including best practices for program operators — with a broad audience within the policy and practitioner community, as well as the general public and the media.

Over the past quarter century, MDRC has worked in almost every state, all of the nation's largest cities, and Canada. We conduct our projects in partnership with state and local governments, the federal government, public school systems, community organizations, and numerous private philanthropies.

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